

ing a correspondence between the  $t$  points of the cubic  $T$  associated with the quadrilateral  $T$ , and the similarly determined  $u$  point, and proceeds to examine all the cases in which this correspondence is uniform, *i.e.*, when to a point of each curve corresponds a single point of the other curve. He then shows that all other cases may be reduced to this case of uniform correspondence. His conclusion, after a discussion of these equations of condition, is that *there are no other solutions besides those deduced from the uniform correspondence cases*. He establishes coincidences with most of the cases discussed in Mr. Kempe's paper, and arrives at one new case, *viz.*, when Mr. Kempe's triangles reduce to straight lines coinciding with the sides respectively of  $T$  and  $U$ .

Our object has been to draw attention to what we look upon as a valuable pendant to the last-named gentleman's Researches in Linkworks.

*Lecture Notes on Physics.* By C. Bird, B.A., F.R.A.S. (London: Simpkin, Marshall, and Co., 1880.)

THE author says in his preface that the book "may be supposed to represent the notes, somewhat expanded, which the teacher would desire the class to take down and learn." If so, the "notes" before us would certainly merit a good deal of attention from the teacher's red-ink pen. Of its 178 pages, 68 are taken up with examination papers of the Science and Art Department. The various branches of physics are very unequally treated. Occasional blunders are frequent. Thus on p. 27 we are told that "Writing  $m$  for the refractive index, the critical angle for any medium is  $\frac{1}{m}$ ." On p. 2 Laplace's correc-

tion of the velocity of sound for the adiabatic conditions is stated to be the ratio of the two specific heats of air, when it should be the square root of that ratio. On the very next page we are told that the amplitude of a sound-wave varies inversely as the *square* of the distance from the source, and that *therefore* the intensity falls off in the same ratio; whereas in fact the intensity is proportional to the square of the amplitude. Under the heading "Electrometers" we observe that the only instruments named are the quadrant pith-ball electroscope, the torsion balance (which is not even described), and the unit-jar! But one could hardly expect accuracy of an author who allows himself to talk about "force" being "converted into heat."

*Diagrams of Zoology.* Sheet I. and II., with handbooks thereto. By Dr. Andrew Wilson. (Edinburgh and London: W. and A. K. Johnston.)

THESE sheets are meant to serve as important adjuncts in the way of illustrating a series of lectures on the classes to be met with in the animal kingdom. They have been drawn and coloured under the direct superintendence of Dr. A. Wilson, and are accompanied by a handbook to each sheet which contains full descriptions of each figure. They will no doubt be found most useful for the purposes of science classes in our public schools, and in them illustrations of recently described forms will be found. For example, under the kingdom of the protozoa, we find no less than five figures representing that low form of animal life called by Hæckel *Protomyxa aurantiacea*, one of the Monera.

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

#### The Exploration of Socotra

WOULD you allow me, on behalf of the Committee of the British Association for the Advancement of Science for the Ex-

ploration of Socotra, to state in your columns that we are anxious to find a competent naturalist to proceed to Socotra early next year, the gentleman whose services we had hoped to secure being unfortunately unable to undertake the task. The expedition will be but a short one, as it would be useless to remain in the island after April.

It would be desirable that the explorer should have some acquaintance with Arabic and some local knowledge of the surrounding districts.

P. L. SCLATER

11, Hanover Square, W.

#### Monkeys in the West Indies

IN reply to the inquiries of Mr. Watt (*NATURE*, vol. xxi. p. 132), I send you the following extract from the *Proceedings* of this Society for February 13, 1866.

"Mr. Sclater called the attention of the meeting to three monkeys recently received from the Island of St. Kitts, West Indies. Mr. Edward Greey, Fellow of the Society, having reported the existence of monkeys in a wild state in considerable numbers upon this island, had been urged by Mr. Sclater to attempt to obtain some specimens, in order that it might be ascertained to what species they were referable, as it had always been believed that there were no native *Quadrupeds* in the Lesser Antilles. Through the assistance of Mr. John Carden, of St. Kitts, Mr. Greey had succeeded in obtaining a specimen of this monkey, and two others from the same island had at the same time been presented to the Society by Mr. H. B. Cameron, Superintendent of the R.W.I.M.S.P. Company, at St. Thomas's. The animals were undoubtedly referable to the common green monkey (*Cercopithecus callitrichus*, Geoffr.) of Western Africa, and must have been introduced years ago, as they were stated to be now very abundant in the woods of St. Kitts, and to cause great damage to the sugar-plantations."

As regards Trinidad, where true American monkeys (*Cebidæ*) are certainly found, it should be recollected that, zoologically speaking, Trinidad is not one of the Antilles, but a little bit of Venezuela, broken off at no very remote period.

Prof. Mivart and Mr. Bates are, therefore, correct in saying there are no *indigenous* monkeys in the Antilles.

P. L. SCLATER

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#### Is Mount Unzen a Volcano?

IN a recent visit to the Simabara Peninsula, about twenty miles east of Nagasaki as the crow flies, an opportunity was afforded me of ascending "Unzen," a mountain which rises about 4,700 feet above the sea (by aneroid). If tradition is to be believed "Unzen" is an active volcano, the subterranean fires of which have been slumbering since the close of last century, when a disastrous earthquake, accompanied by a volcanic eruption, destroyed 53,000 of the inhabitants of the district. But I failed to find any trace of a recent volcano, which, wherever it may be, is certainly not situated in the higher peaks of the mountain, where popular belief has located it. From the sea-level up to the highest summit a porphyry is the ever-prevailing rock, which varies somewhat in different parts of the peninsula. True it is that from many points of view Unzen has somewhat the form of a truncated cone, but there the resemblance ends.

There are, however, three hot sulphur springs, which may help to explain the popular error on the subject. One of them is situated in the fishing village of Wobama, at the foot of the mountain, and close to the water; a strong odour of sulphuretted hydrogen scents the air, and the thermometer placed in the water rose to 112° F. Rather more than 2,000 feet above the sea are the hot springs of Kojeego and Unzen. In the former place the water bubbles up into a pool some ten or fifteen yards across, with a temperature of 182°, while at Unzen the hot springs are on a far more extensive scale, numerous springs bubbling away furiously over an area of several acres, which is completely destitute of vegetation. The ground is often so hot that with a thick pair of boots one cannot stand long on the same spot. The thermometer rose as high as 202°, which would be only about 6° below the boiling-point of water at that elevation, and a dense cloud of white smoke ascended into the air which was strongly impregnated with the same sulphureous odour. The chemical and thermal influences of these hot sulphur springs have produced a singular effect on the porphyry of the immediate

locality; while the rock has a tendency to lamination, its disintegrated felspathic constituents whiten the whole surface, and the neighbouring hill-slopes overlooking the springs are as white as any chalk-cliffs from the same cause. This phenomenon is only to be found in the immediate vicinity of the hot springs.

It is with the hope that these few notes may be the means of eliciting further particulars, especially as regards the history of this so called volcano of Unzen, that I venture to send them to NATURE.

H.M.S. *Hornet*, Nagasaki,  
October 13

H. B. GUPPY,  
Surgeon H.M.S. *Hornet*

### Astronomical Subject-Index

I AM preparing for publication, by the Royal Dublin Society, a review of the progress of astronomy during the present year, consisting of a classified index catalogue of books, memoirs, and notes on astronomical subjects published since the beginning of the year, and, secondly, of a short account of the contents of the more important papers in the various branches of astronomy.

Any person who has felt the want of such a "subject index" could assist materially in the undertaking by sending me, as soon as possible, the titles of such papers as seem likely to be overlooked on account of having been published in less widely-diffused periodicals or transactions. In particular I would be glad to hear of papers published quite recently in transactions or proceedings of learned societies, as these often are not distributed until some time after their publication.

J. L. E. DREYER

The Observatory, Dunsink, Co. Dublin, December 11

### Distinguishing Lights for Lighthouses

*A propos* of your article on Sir William Thomson's letter in the *Times*, and the dangers to ships from bad systems of distinguishing the lights of different lighthouses, I send you the accompanying graphic account by my brother, Mr. J. P. Thompson, of a narrow escape from shipwreck which occurred to him during the autumn of the present year, and which illustrates the urgent need for reform in the adopted system.

SILVANUS P. THOMPSON

"All went well till off Ushant, when the wind began to rise, and by Saturday afternoon the Channel was heaved up by what was logged as a 'moderate gale' from the south-west. This kept freshening every hour, and at 7 P.M., when the lamps were being lit, the captain said we should have a very 'dirty night,' and he accordingly donned his oilskins and 'sou'-wester.' The atmosphere began rapidly to cloud, and at 9 o'clock you couldn't see more than a ship's length or two ahead. As we were in a crowded track of vessels, the watch look-out was doubled. . . . At 11 I was on deck again, and found all looking out eagerly for either the St. Agnes (Scilly) or the Wolf Light, the latter being near the Cornish coast. Of these lights the St. Agnes shows a white light at each revolution of a minute, whilst the Wolf is the same, but with a flash of red between. The sea was very phosphorescent, and this dazzled the eye when looking for lights. I was set as a look-out on the starboard quarter, and many times had to go aft for the captain to see how she lay by the compass abaft (she was being steered at the wheel in an iron wheel-house on the bridge.) . . . About midnight we sighted a light, and on timing it, found it to be a white light of a minute's revolution; we looked in vain for a red flash between the whites, as we knew we ought to be near the Wolf. But in the fog not a 'smell of red' could be discerned, although by the rate at which we passed it we must have been very near it. Supposing, then, that there was no red flash, this must be the Scilly light, and the captain accordingly steered more easterly, so as to fetch the Wolf. He nevertheless hardly thought we had got so far to the west as the Scilly, so he ordered a sharp look-out to be kept for breakers or land. At 3.30 I turned in again, but at 4 A.M. I suddenly heard the look-out cry out 'Land! breakers ahead!' and then I heard the captain run to the telegraph, and heard the bell ring in the engine-room, and the captain's sonorous voice calling 'All hands! square away the yards! 'bout ship!' I jumped up, and ran on deck, and there right ahead the fog had just lifted to show us we were almost ashore, heading straight on Penzance; so near, indeed, were we that I could have easily counted the houses. Happily the ship, answering her helm well, came round beautifully, and at the same time the fog closed again, hiding

the shore and the dreaded rocks. So after all it *was* the Wolf light we had sighted, *but the fog had prevented us from seeing the red flash*. It was a narrow escape, though; and then we had to beat back in the teeth of the gale, and it took us six hours to beat back to the Land's End."

### The First "Sin"

It occurred to me lately, whilst reading in the September number of the *Contemporary Review*, an article by Lenormand called "The First Sin," that it may be possible to turn another page of that very interesting history of ideas, the reading of which appears to be one of the great tasks allotted to this century. Although it seems unlikely that the idea suggested to me by the article has not also occurred to others, I cannot discover that anything has been said about it, for the author seems strangely enough to lead one to the door, as it were, and leave one there without opening it; I should therefore like, if you will permit me, to lay it before your readers, and hear what they have to say about it.

My idea is this: that the tradition of a tree of life, and also of a tree of the knowledge of good and evil, both connected with a sin and a catastrophe, probably originated in man's first acquaintance with the effects of intoxication.

Lenormand himself connects that tradition with the worship of Bacchus (and also with the theft of fire in a piece of a tree by Prometheus, and with that of the apples of the Garden of the Hesperides). It seems strange, therefore, that he goes no farther, more especially as he himself points out that the representations of the tree on the monuments of different nations are always referable to those from the fruit or foliage or crushed branches of which an intoxicating liquor is derived; from the Soma tree, that is, and the palm and the vine.

There is no need to burden your pages with proofs and quotations, as any one interested in the subject can procure the magazine now at half price; I will merely add to my suggestion that, as the primitive notion of life must have been characterised by warmth and motion, and the first effects of the fruit of the tree would also be, probably, warmth and excitement, exhilaration and the temporary exaltation of some of the faculties, it would easily come to be looked upon as a "tree of life;" and that, the after-effects being bad and degrading, it would thereby become a tree of the knowledge of evil as well as good, and also the cause of a fall into a lower state of being.

May I add a suggestion concerning the serpent always connected with the tree, as on the early Babylonian cylinder figured on p. 91 of George Smith's "Chaldean Account of Genesis"? It appears to have represented the principle of evil very early, probably long before it was connected with the tree, and to have been at first the sea, which in a storm was the chaos out of which everything was formed, and which, as it seemed to swallow up sun, moon, and stars, and to bring forth the storm-clouds—those monsters with which the sun-god fought with his arrows the lightnings—came also, not unnaturally to represent the destructive principle. But how did it become a serpent? May it not have been the singular resemblance that the edge of the sea—as seen from a moderate height in a calm—bears to a huge serpent—now blue, now white, according to the amount of foam—winding and writhing about the earth, and eating out its rocks and shores, that caused its destructive attributes to be transferred to the serpent? A common name may have been the means. The resemblance is especially striking when the eye looks along the shore, as in the bend of a bay.

Another suggestion. Some years ago, when reading the description of the locality of the Battle of Beth Horon in Dean Stanley's work on Palestine, it seemed to me to point to the origin of the tradition of the sun and moon standing still at the command of Joshua, and I do not think it has been noticed. In any valley lying north and south, if one goes up the western hills as the sun sets to the valley, when one reaches the summit the effect of a new day and a fresh supply of sunlight is very striking. This sensation must have been strongly felt by the warriors of Israel, when, after pursuing their enemies up the pass, the still sunlit valley beyond broke upon their sight; and I cannot but think that, figuratively expressed, as it would be, and with much exaggeration, in the triumphal song sure to have been made and sung after the victory, it may well have originated the tradition of a standing still of the sun; the moon would follow suit. The songs are said to be the oldest parts of the Bible, and "Jasher" or "The Upright" may have been the singer or recorder of the lost song of triumph.

J.